

WHAT IS CLAIMED IS:

1. A method for decompressing image data representing a plurality of pixels and represented by a plurality of bitwords, each pixel corresponding to a separate bitword, the process comprising:

decompressing data from a compressed-data-bitword to provide data indicative of a plurality of explicit pixels; and

synthesizing data from the data indicative of the plurality of explicit pixels to provide data corresponding to at least one synthesized pixel.

2. The method of claim 1, wherein decompressing a quantity of non-continuous tone data is increased to approximately four times of a quantity of uncompressed non-continuous tone data present in a plurality of bitwords representing a plurality of pixels.

3. The method of claim 1, wherein, during decompression, non-continuous tone data with a high spatial resolution in one dimension is decompressed into a high spatial resolution bitword-map with reference to information indicating a direction of an edge within the image data.

4. The method of claim 1, wherein, decompressing the data from the compressed bitword for a single data pixel comprises:

identifying a bit word as continuous tone data; and

decompressing continuous tone data to provide image data for a single pixel at a higher spatial resolution corresponding to a plurality of pixels.

5. The method of claim 4, wherein, decompressing the data from the compressed bitword for a single data pixel comprises:

synthesizing bitwords of information corresponding to discarded non-continuous tone data; and

copying the single pixel to provide the image for the surrounding pixels.

6. The method of claim 1, wherein each of the bitwords are bytes.

7. The method of claim 6, wherein, decompressing the data from the compressed bitword comprises:

referencing the segmentation bit of the bitword to determine whether the bitword contains non-continuous tone data;

referencing the direction bit to determine whether the direction of the edge located in spaced relationship to the first and second pixels;

referencing the three-bit value indicative of the first pixel; and

referencing the three-bit value indicative of the second pixel.

8. The method of claim 6, wherein, for each bitword, synthesizing the data is performed in either a fastscan direction or a slowscan direction based on a direction bit contained in that bitword.

9. The method of claim 8, wherein, synthesizing the data comprises determining which pixel positions are to be synthesized during decompression based on the direction bit.

10. The method of claim 9, wherein, synthesizing the data comprises rendering from each bitword twice as many pixels in a direction perpendicular to an edge indicated by the direction bit of that bitword.

11. The method of claim 9, wherein, when the direction bit indicates a vertical edge, synthesizing the data comprises using the three-bit value associated with the first pixel and the three-bit value associated with the second pixel in the compressed-data-bitword to determine slope in the fast scan direction to render the vertical edge.

12. The method of claim 9, wherein, when the direction bit indicates a horizontal edge, synthesizing the data comprises using the three-bit value associated with the first pixel and the three-bit value associated with the second pixel in the byte of compressed data to determine slope in the slow scan direction to render the horizontal edge.

13. A method for decompressing compressed image data comprising:  
decompressing a single byte of compressed data to produce four pixels of non-continuous tone data.

14. The method of claim 13, further comprising, transmitting the byte of data to a print engine where the step of decompressing is performed, the step of decompressing including extracting data necessary to render two non-continuous tone data pixels and fabricating two more non-continuous tone data pixels in a low-spatial resolution direction based on a set of values of the extracted data.

15. A decompression system for decompressing image data, the system comprising:

a decompressor that decompresses a data bitword-map to provide high spatial resolution data containing non-continuous tone data using extra resolution across edges of the marks, and that decompresses the data bitword-map to provide low spatial resolution continuous tone data.

16. An image forming device, including the decompression system of claim 15.

17. The image forming device of claim 16, wherein the image forming device is one of at least a facsimile machine, a laser printer, an inkjet printer, a digital copier or a full-width-print bar printer.

10025671.122601